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The Improvement of English Instruction

RALPH C. M. FLYNT

Oceanography: New Vistas and Opportunities

CLARENCE B. LINDQUIST

AUGUST 1964

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Grants for research on teaching the handicapped

The Office of Education has allocated $999,739 for 34 projects in 17 States to investigate ways of teaching handicapped children. The allocations have been made under the provisions of title III, Public Law 88–164 (the Mental Retardation Facilities and Community Health Centers Construction Act of 1963), the second part of which authorizes a program of grants for research or demonstration projects on the education of children who are blind, deaf, speech impaired, mentally retarded, crippled, or emotionally disturbed. (The first part of the title authorizes a program of training for teachers of teachers of the handicapped.)

The projects will be conducted by colleges and universities, local school systems, State departments of education, associations working for the handicapped, clinics, and special schools, such as schools for the deaf. The University of Southern California, for instance, will establish a center for gathering and testing teaching materials and methods of educating the mentally retarded. The University of Wisconsin and the Wisconsin State Department of Education will establish a central depository for teaching materials for handicapped children. The depository will lend materials, provide an index, develop and evaluate materials, and help other educational agencies in the preparation of materials. The Highland Park, Mich., school district will test to learn whether a public school can provide and coordinate psychological and educational programs for children in a family having at least one emotionally disturbed child.

Conference on space education

"Space: Where all the sciences meet" was the theme of a conference sponsored by the National Aeronautics and Space Administration and the Office of Education last month. The conference was called primarily to

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discuss ways in which NASA can improve its science education program. It brought together supervisors of science in State departments of education, representatives of the American Association for the Advancement of Science, and specialists from the two Federal agencies.

General sessions and roundtable discussion groups took up such topics as the past, present, and future of space exploration; trends in science education; potential of science education in the space age; the space physical sciences; and NASA's spacemobile lecture demonstration project. The conference closed with a summary report of roundtable discussions.

Innovation and experiment in education

"The task of educational research and development is to learn how to provide for all students the kind of education an exceptional teacher provides for a few," Jerrold R. Zacharias says in the foreword to *Innovation and Experiment in Education*, a progress report of the Panel on Educational Research and Development. To learn how this task can be accomplished is the job the Panel set out to do when it was formed in 1961.

This panel of distinguished educators, with Dr. Zacharias as chairman, was created by the President's Science Advisory Committee, not to conduct research but to identify programs and experiments for others to try. It has issued the report at this time to encourage others to initiate experiments. If the report offers no master plan of who should do what, it does offer much else: Suggestions to stimulate ideas and enthusiasm for experiments, proof that sound results of experiments can lead to reform in education, confidence in the would-be-experimenter, and convincing evidence that members of other professions can contribute much to educational reform. In fact, some ideas presented in the report grew out of seminars and meetings in which members of other professions participated. (Reports of the seminars are to be published later.)

Although the Panel is concerned with the contributions that research and development can make to education at all levels, so far it has dealt only with elementary and secondary education and teacher education, and only with some problems at these levels. The progress report deals primarily with these four: Learning about learning, music education, teacher education, and education for the deprived and segregated.

Before going into these subjects, all Panel members looked at what schools are doing and then considered what might be done, how to get changes made, and how to apply the lessons learned in such programs as the new mathematics and physics programs. On each of the four subjects the report suggests ideas that the Office of Education, the National Science Foundation, and other agencies and institutions might try out.

Throughout the discussion the Panel emphasizes two aspects of educational reform: the first is the development of models to show what can be done—for example, in textbooks, films, teacher guides, and new schools; and the second is the voluntary adoption of models by local schools.

Innovation and Experiment in Education: A Progress Report of the Panel on Educational Research and Development to the U.S. Commissioner of Education, the Director of the National Science Foundation, and the Special Assistant to the President for Science and Technology (79 pages) is available for 35 cents a copy from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

Higher education for the disadvantaged

The Office of Education has initiated an intensive program to bring college opportunities to worthy but disadvantaged young people. Commissioner Keppel has appointed an assistant for special higher education to plan and develop projects that will help these young people obtain college education. Broadus Butler, former assistant to the dean of Wayne State University College of Liberal Arts, is filling the new position.

Dr. Butler will work closely with colleges and universities in the North and South to promote interchange of pupils and teachers and to encourage joint research projects and will negotiate with institutions and foundations to find sources of financial assistance. His assignment will include cooperation with the President's Committee on Equal Employment Opportunity and the American Council on Education.

Third Kennedy volume issued

The third and final volume of the public papers of John F. Kennedy in the series "Public Papers of the Presidents of the United States" is now available. The volume, with more than a thousand pages, contains messages, speeches, and transcripts of press conferences of the late President from January 1 to November 22, 1963. It also includes special messages to the Congress on the education and the welfare of young people and the elderly; statements on the Geneva disarmament meetings; radio and television messages on civil rights, the test ban treaty, and the tax cut; and joint statements with the heads of foreign governments. The volume also contains the two addresses Mr. Kennedy had planned to deliver on the day of his death and the proclamation of President Johnson declaring November 25 as a national day of mourning.

The third Kennedy volume is the 14th in the series of Presidential public papers. Other volumes are on the first 2 years of Mr. Kennedy's administration, the 8 Eisenhower years, and the first 3 years of President Truman's administration. Other Truman volumes are in preparation.

All volumes of the series are for sale by the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. The third Kennedy volume is priced at $9.

Other volumes of the series vary in price.

The series is prepared by the General Services Administration, National Archives and Records Service, Office of the Federal Register.

Demonstration project to combat poverty

Fulton County, Ga., has begun a 3-year demonstration project to help break the cycle of poverty for about 1,000 of its young people. Through a $269,000 grant from the Bureau of Family Services, Department of Health, Education, and Welfare, the county's department of public welfare will mobilize community educational, vocational, and business resources on behalf of young people, 16 to 19 years of age, whose parents are now receiving public assistance. The project will pay $25 a month to the school dropout to return to school or to take on-the-job training. The project, called BEES (business, education, and employment services), will provide vocational education through a nonprofit corporation, which will develop materials and courses for training in accounting, clerking, selling, automobile repairing, and gardening-landscaping.

The project aims at discovering the reasons young people discontinue regular academic or vocational education and whether, if offered special assistance, needy young people will continue in school and eventually become self-supporting.

Report on legislation

Single copies of the report "Federal Legislation Concerning Education and Training" are available from the Committee on Education and Labor, U.S. House of Representatives, Washington, D.C., for the asking. The 156-page report is divided into three parts. Part 1 reviews the history of legislation on education and training and summarizes the provisions of legislation passed by the 1st session of the 88th Congress. Part 2 reviews and summarizes the many issues represented by legislation pending in the second session. Part 3 lists the recommendations on education and training made by President Kennedy and President Johnson in the past year.

According to the Honorable Carl D. Perkins, chairman of the House General Subcommittee on Education, the report contains information necessary to the subcommittee and to the Congress as a whole before members can make informed decisions on pending legislation.

The report was prepared in the Legislative Reference Service, Library of Congress by Charles Quattlebaum.

Students' smoking habits being studied

Changes in student attitudes toward smoking since the Public Health Service issued its report on smoking last January are under study by the Public Health Service. The Student American Medical Association (SAMA) is helping PHS to conduct the study. PHS has sent copies of the report and a questionnaire to about 11,000 students of medicine, dentistry, and osteopathy throughout the United States. SAMA will encourage students on its list to participate in the survey and will collect completed questionnaires and forward them for PHS analysis.

The completed study will, PHS believes, give a more accurate picture of smoking behavior among members of an important group in the health professions. The results will help PHS to develop professional education and information programs and materials.

AEC exhibit at Fair

The exhibit sponsored by the Atomic Energy Commission at the New York World's Fair includes a special display for children, 7 to 14 years of age, called "Atomsville, USA." Special attractions will be a question-and-answer project operated by levers and pushbuttons; mechanical hands for manipulating make-believe radioactive materials; mechanisms for creating atomic patterns; and a scale registering the visitor's weight in atoms instead of pounds.

For adults the exhibit provides an explanation of the principles of nuclear science. There are devices by which the audience can participate in the explanation and a short motion picture on power-reactor installations in the United States.

Both parts of the exhibit will be available to museums after the Fair.

Facts on U.S. teachers from the census

The United States had about 2 million teachers in 1960, according to a recent report of the Bureau of the Census, U.S. Department of Commerce. The report includes these facts about the teachers:

Although three out of four of the teachers in elementary and secondary schools were women, the opposite was true at the college level: more than three out of four college teachers were men.

The average man teacher was younger than the average woman teacher: 36.7 years as against 44.4 years. The average teacher in the West was younger than the average teacher in other sections of the country.

Three out of four elementary and secondary school teachers had completed 4 or more years of college; urban teachers had more education than rural teachers.

There were 140,000 Negro teachers; 3 out of 4 were women and 2 out of 3 were teaching in elementary schools.

The average teacher earned $4,564 in 1959. Teachers in the West and Northeast received the highest salaries (both above the average); those in the South received the lowest.

"Characteristics of Teachers," U.S. Census of Population: 1960 PC(2)–7D, is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402, or at any field office of the Department of Commerce. The price is 50 cents a copy.

The Improvement of English Instruction

RALPH C. M. FLYNT

I ADDRESS MYSELF to teachers of English from the vantage point of a sister discipline. As a young man I prepared myself to be a teacher of history. The historian is perhaps unusually well qualified to appreciate both the power that the command of language exerts in human affairs and the rich heritage of literature that illuminates the record of human experience. The teacher of English is his ally.

I would be untrue to my original specialty if, before I express my views on the present deficiencies of English instruction in American schools, I did not take a glance backward for a moment to put the problem in its historical setting. It is encouraging, when we confront the magnitude of our tasks, to recall how well the generations preceding us have done.

Between 1889 and 1962, enrollment in American high schools expanded from approximately 360,000 students to 10,800,000. In the school year 1889–90, only 6.7 percent of the persons between 14 and 17 years of age were enrolled in grades 9–12. In the school year 1961–62, 90 percent of the children of this age were in high school. Unfortunately not as much progress was made in the quality of education, since throughout the years the need for well-prepared teachers far exceeded the supply.

Consider, for example, the situation in Ohio, a State which long has been a leader in keeping excellent school statistics. Looking at some of the figures, we can see how far we have come, even in the period of my lifetime, in our efforts to obtain a properly prepared teaching staff. Ohio is one of our wealthiest States, yet as late as 1914 only 50 percent of the teachers in rural and village schools were graduates of high schools; 18 percent had no education beyond the elementary grades. In the small cities, an estimated 31 percent of the elementary school teachers were not high school graduates. In the cities and the towns, 60 percent of the high school teachers were not college graduates, and 19 percent had not even graduated from high school!

Between 1914 and the 1960's, great changes have occurred. By 1960, according to the National Education Association, almost 72 percent of Ohio elementary school teachers had earned more than 120 semester hours in college, and less than 1 percent had earned fewer than 60 semester hours. By 1963, according to the U.S. Office of Education, all of the 50 States required at least the bachelor's degree for a regular secondary school certificate: 3 required a master's degree (or its equivalent); and all but 5 of the 50 States required the bachelor's degree for an elementary certificate. Even though some substandard certificates are still being issued to overcome the teacher shortage, it is clear that within another generation the teacher who has not earned a college degree will be a conspicuous exception in American schools.

For this great advance in so short a time, the American people may well be proud. For all its speed, however, it has not been fast enough, even though in other ages it might have been considered more than adequate. The advance has taken place during a social revolution of incredible proportions, one that has demanded more of our educational system than it has been ready to give. Even so, it is this very advance in American education that has made this revolution possible.

Never before in the history of mankind has there been so fast a rate of social change. In passing from a simple rural economy to a complex urban industrialized economy, and from a relatively weak country to one with an unsought position of international leadership, we have also elevated the educational requirements for successful participation in the daily affairs of American life. The uneducated or poorly educated citizen finds himself virtually unemployable and quite incapable of effective participation in civic affairs. The demands on each person are so unsparing that the quality of his education, always important to conscientious teachers and administrators, has become our primary concern. We are still interested in the personal growth and development of each student, but we stress more than ever as a major part of this growth the mastery of subject matter basic to further learning. One of these generative subjects surely is English.

THE STRENGTH of an educational system depends in large measure upon such factors as the qualifications of its staff, the effectiveness of its administration, the adequacy of its curriculums and of the instructional methods used, the suitability of its facilities, the extent of its support by its constituents, and the abilities and attitudes of its students. These factors—most of which require funds—are, of course, interrelated in many ways.

None of these factors is more important than the ability of the faculty. In an age in which the mastery of

Mr. Flynt is Associate Commissioner for Educational Research and Development, U.S. Office of Education. *His article is adapted from a speech he made before the District Council of Teachers of English, February 6, 1964.*

basic subjects is becoming daily more important, it is not enough to ask that a teacher merely be a college graduate. He must be soundly qualified in the particular subjects he is assigned to teach. Assigning an unprepared teacher to such crucial subjects as English or mathematics, for example, can seriously damage a child's future advancement, for these are the foundations of his later learning. They are, in a sense, building blocks of the intellect. What the child learns in these subjects he can later transfer to an infinite number of activities.

Teachers of basic subjects, then, should not only know their subjects thoroughly but also be familiar with the best materials and methods yet devised. In secondary schools the teachers should have earned an undergraduate major in their teaching subject and should aspire to a higher degree if they mean to make teaching their profession. The school that cannot get such teachers should do the next best thing and employ a person with a strong minor in the teaching field and a major in a related field—someone reasonably gifted and vitally interested in the subject he is to teach. Unfortunately, in English, we have scarcely made our way halfway to this goal.

The size of the effort needed to insure to American children a sufficient number of well-prepared teachers of English at all levels is indicated in a new book which will be published this spring by the National Council of Teachers of English. It will be called *The National Interest and the Continuing Education of Teachers of English*. The following facts were made available to the Commissioner of Education, Francis Keppel, in advance of publication.

★ The 7,417 English teachers in secondary schools included in a representative sampling have an average teaching experience of 9 years, but only half of them (50.5 percent) have a major in English, and one-third of the teachers do not have a major in a field related to English. Two-thirds of these teachers do not consider themselves well prepared to teach composition and oral skills, and almost half (not quite 50 percent) do not consider themselves well prepared to teach literature and language. Teachers in junior high schools and small schools are the least well prepared.

★ Of the 7,417 English teachers, almost one-third (30.4 percent) have not taken a course in English for more than 10 years. The least well prepared are the ones least likely to take courses in English, even if they teach English regularly. The average English teacher in secondary schools has never had a chance to confer with a college specialist in English or English education, or with a trained supervisor in his own district. One in 10 has never had the opportunity to confer formally with other secondary teachers of English about teaching problems, not even in his own school.

★ More than half of the school districts require no evidence of professional growth in English from their high school English teachers. In any one year only about 800 of the 90,000 high school English teachers in this country receive any form of financial assistance for graduate study.

★ The elementary teachers of English need further education even more desperately than the high school teachers. Of 3,030 teachers, making up a good cross section of every region and every kind of school, more than 40 percent began teaching without a baccalaureate degree. Oddly enough, more of these teachers began in the upper elementary grades than in the intermediate or lowest; 49 percent of the seventh- and eighth-grade teachers sampled had started at that level.

★ The younger teachers are much more likely to have their bachelor's degrees than the older, but are not likely to have majors in academic subjects—their majors tend to be in "education." Most of the continuing education of elementary teachers is directed to bringing them up to the baccalaureate level.

A previous NCTE study, *The National Interest and the Teaching of English*, shows that on the average, an elementary school teacher will earn only 8.1 semester hours in English beyond the freshman course. Of the 569 institutions responding to the NCTE questionnaire, 41 did not at that time require elementary teachers in training to take *any* English courses beyond the freshman year.

Although more time is given to courses in English in elementary school than to any other subject, elementary teachers have not been well prepared. The 1959 NCTE study reports that among the elementary teachers then employed only 1 in 3 had been required to study American literature in college and only 1 in 3 had been required to complete a course in English literature, 1 in 5 had been required to study composition beyond the freshman year, and only about 1 in 20 had taken a course in the English language. Surely the English profession must share some responsibility for this neglect.

Because many of these teachers were not well prepared, the curriculums they developed suffered from inadequacies. Many students were taught some important things year after year, but were not taught other important things at all. The curriculum lacked sequence, both between the elementary and the secondary schools and between the secondary schools and the colleges. In many curriculums there were gaps or needless repetitions. Some curriculums were overcrowded. Because English is related to almost everything else taught in the schools, it becomes a miscellaneous file, in which anything not otherwise cared for in the high school was inserted—but from which nothing was removed.

In too many schools English was relegated to the status of a "tool subject." Forgotten was the fact that it had an enormous subject matter of its own, a brilliant literature, a complex language not easy to master, and many forms of composition. Writing was insufficiently emphasized. The works chosen for reading were

Statistic of the Month

High school graduates: 1963 and 1964

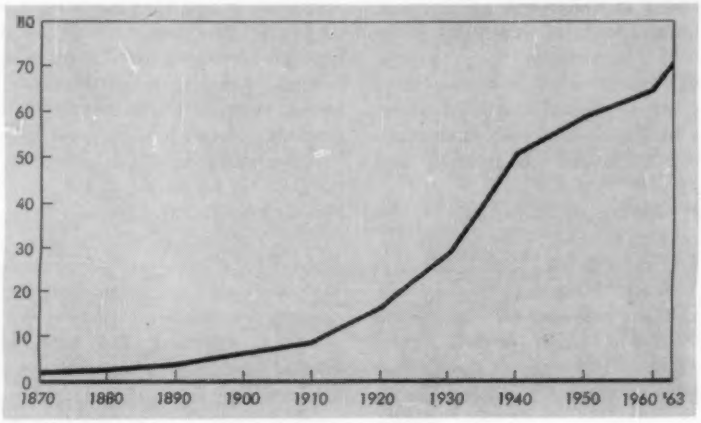
Approximately 2.3 million young people—the largest number in our history—were graduated from high school in 1964 (most of them in June, but about 3 percent in January). This is an increase of more than 300,000 over the class of 1963.

The size of the 1964 graduating class reflects the high birth rate that followed World War II and the increasing tendency of young people to remain in school at least until high school graduation. During the past century, as the accompanying chart shows, the proportion of high school graduates has steadily increased, decade by decade. Between 1870 and 1963 the number of high school graduates for each 100 persons in the population 17 years old rose from 2.0 to 70.7.

About half of the 1964 graduates, or some 1.15 million, will enter colleges and universities in September. The Office of Education estimates that there will be 1.25 million first-time college students this fall, including some graduates of earlier classes. For hundreds of thousands of 1964 graduates, high school graduation marked the end of formal education. A sample survey of the graduating class of 1963, conducted by the Bureau of Labor Statistics, U.S. Department of Labor, in October 1963, provides some indication of what we may expect for the 1964 graduates who do not enter college. In the fall of 1963, 90 percent of the boys and 72 percent of the girls who had not entered college were in the labor force—either employed or seeking employment. Many of the boys were employed as semiskilled operatives and laborers; a majority of the girls held clerical jobs. About 18 percent of the graduates in the labor force were unemployed. The table shows the percentage distribution of the types of positions held by the 1963 high school graduates in October 1963.

For additional information on young persons in the labor market, see "Employment of High School Graduates and Dropouts in 1963," an article in the May 1964 issue of *Monthly Labor Review* (vol. 87, No. 5). This issue may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402, for 75 cents a copy.—*W. Vance Grant, educational statistician, Office of Education.*

Number of high school graduates for each 100 persons 17 years of age, United States, 1869–70 to 1962–63



SOURCE: Office of Education, Digest of Educational Statistics

Percentage distribution of 1963 high school graduates [1] employed in October 1963, by sex and by occupation group

Occupation group	Total	Male	Female
All occupation groups	100.0	100.0	100.0
Professional, technical, and kindred workers	22.6	22.6	22.6
Managers, officials, and proprietors, except farm	1.5	2.6	.6
Clerical and kindred workers	37.1	10.9	57.8
Sales workers	6.1	4.0	7.8
Craftsmen, foremen, and kindred workers	4.4	8.4	1.2
Operatives and kindred workers	19.8	35.4	7.5
Private household workers	4.5	.7	7.5
Service workers, except private household	10.2	8.4	11.6
Farm laborers and foremen	4.0	5.5	2.9
Laborers, except farm and mine	9.8	21.5	.6

[1] Includes persons 16 to 24 years of age in the civilian noninstitutional population.

NOTE.—Because of rounding, detail may not add to totals.

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Monthly Labor Review*, May 1964.

often less valuable and interesting than they should have been. Selections were sometimes made on the basis of reading difficulty alone, for example, although passages of similar difficulty but of greater interest and permanent worth could have been read in the same amount of time.

In recent years we have begun to define more clearly the needs of special groups of students in English and to realize that they need special attention in the curriculum. Included in this group are the academically talented, mentally retarded children, slow learners, handicapped readers, students who must learn English as a second language, and students from culturally deprived backgrounds. Some teachers are saying that the average children also need special attention—that perhaps they are becoming the most neglected group in American education. →

ALTHOUGH many schools are doing good work in the teaching of English, it is evident that much more research is needed to define the content and teaching procedures that make up an effective curriculum in English. These elements need to be combined to create sequential English curriculums adapted to the needs of children of various social backgrounds and abilities.

In addition, teachers have to be brought up to date on the new knowledge in their fields. Since the days when many of our teachers were educated, there has been an explosion of knowledge in English, including great advances in the study of the English language. Moreover other changes are in prospect: a renewed interest in rhetorical theory gives promise of a new rhetoric more effective than the old; the emphasis on the new criticism seems to be subsiding, but emphasis continues to be placed on the close reading of literary text and on the teaching of literature rather than on teaching about literature. Curriculum builders have to find ways to incorporate the most usable parts of this new scholarship into the curriculum.

Teachers of English have not been unaware of their problems. Affiliates of the National Council of Teachers of English, aided by its National Committee on Teacher Preparation and Certification, have helped to strengthen the certification requirements for English teachers in half the States. In 1958, the National Council, in cooperation with the Modern Language Association, the College English Association, and the American Studies Association, defined "The Basic Issues in the Teaching of English," a brilliant statement of the problems of the profession. In 1962, NCTE published the influential book, *The National Interest and the Teaching of English*, which aroused the conscience of educators. The year before, the College Entrance Examination Board (CEEB) had formed a Commission on English and through it, in 1962, poured $1 million into model institutes for teachers of English at 20 universities, aimed at improving the English instruction of college-bound students. A CEEB committee is now working to improve its English examinations. These are hopeful developments, but more are needed. Clearly, one of the needs is strong support for research in the teaching of English.

Recognizing this need for research, the Office of Education in 1961 began Project English. In less than 3 years, Project English has already provided support for a great variety of studies in four programs: curriculum study centers, demonstration centers, developmental activities, and basic and applied research. Proposals for investigations come from colleges, universities, and State departments of education. Individual projects to be supported are selected, not by Office of Education staff members, but by a panel of experts from the profession. In this and in other ways, the control of research rests basically in the hands of the profession itself.

Perhaps the most ambitious investigations are being carried on by the curriculum study centers, each of which is set up for a 5-year period to develop a curriculum spanning several school grades. No attempt is being made to design one national curriculum. Instead, a variety of carefully designed curriculums should ultimately be available which a local system can adopt, adapt, select from, or use as springboards for independent developments.

Curriculum study centers have been established at 11 institutions of higher education, each with a special purpose. For example, Hunter College is developing reading and English-language materials for grades 7–9 in depressed urban areas. Not content with collecting, analyzing, and developing appropriate instructional materials for children from underprivileged environments, it is also developing curriculum and teaching guides for the preservice and inservice training of the English teachers in such areas.

One of the needs of the profession has been to develop demonstration centers where successful practices based upon previous research and experience could be applied. Project English is supporting a number of such centers. One, at Syracuse University, is working on "A Center for Demonstrating the Teaching of Reading to Students" in grades 7–12. Both this center and the one at the University of California at Berkeley are preparing visual material—the latter, kinescopes for teaching 10th-grade literature and composition.

Project English is supporting developmental activities of many sorts. The best known have been conferences, such as that at the Carnegie Institute of Technology held in May 1962, on "Needed Research in the Teaching of English," and the Allerton Park Conference, held in December 1962, on "Research in the Teaching of English," in which chairmen of college English departments pledged themselves to give the same recognition to research in the teaching of English as to research in language and literature.

Far more numerous than curriculum or demonstration centers, however, are research proposals under the basic and applied research program. Here, researchers select a particular problem and attempt to find its solution. The Office of Education is already supporting much research in the teaching of reading and intends to spend a very substantial amount on proposals to determine the relative effectiveness of different methods of teaching reading to beginners. Fundamental research has been supported on the language ability of children at different age levels. Everything from programed instruction to teaching reading to the blind is under investigation. Of the numerous projects submitted, more than 60 proposals have been approved. Already one senses an improvement in research design as the requirements for effective research in this field are becoming better understood. Fifteen of these investigations have already been completed. With hundreds of good minds co-

operating to improve the English curriculum, we have much to hope for in the future. I know, and you know, that not everything in so complex a field as English can be reduced to a certainty. In the end, teaching is an art. But we can all agree that it would be foolish not to know those things for certain that can be known for certain, even if there are many aspects of the art of teaching English that must depend upon the learning, judgment, insight, sensitivity, and resourcefulness of the teacher.

IN conclusion, I hope that other kinds of assistance will soon come to the aid of the English teacher in his important work. The annual NCTE recognition of schools that are decreasing teaching loads in English shows that administrators over the country are becoming aware that teaching English well is an extraordinarily time-consuming task. Although in most systems we cannot soon look forward to teaching loads of 100 different students a day, as Dr. Conant and the National Council have recommended, it is important that the trend is favorable. Other help is in prospect.

Legislation pending before the Congress includes a number of proposals: institutes for elementary and secondary school teachers of the humanities comparable to those in foreign languages and sciences; assistance for the improvement of teacher education; an expanded fellowship program for those entering upon graduate study; and funds for improving elementary and secondary education, including support for better salary scales. These proposals have the support of the present administration. If some or all of these proposals become law, they could contribute directly to improvement in the teaching of English. The previous session of Congress, approvingly termed the "Education Congress," passed legislation of great significance for us. It is my hope that the record of the second session will be equally favorable.

School Social Work in the United States

J. WILLIAM RIOUX

SCHOOLS INCLUDE social work services in their noninstructional services in order to help children overcome any social and emotional problems that may detract from their ability to use the resources of the school effectively. The school social worker helps children through individual casework, community resources, consultation with other school staff members, and continuous collaboration with teachers, administrators, and other noninstructional school staff members. His unique contribution to the school's effort to help troubled children lies in his ability to gather pertinent social history material, interview skillfully, and tie together the efforts of the school, home, and community. He is the synthesizer of all types of information bearing on a child's adjustment to school.

Conflict unnecessary

Schools in some areas are slow to establish school social work services because officials believe that school social work services duplicate those provided by guidance services. Although some schools support both services, professional tendencies to protect "prerogatives" and "operating areas" may result in ineffective use. A clear understanding of the functions of both services eliminates misconceptions and conflicts.

Dr. Rioux is specialist, School Social Work Services, Office of Education. He has been a teacher, school social worker, supervisor of guidance and counseling, and a director of research in school systems in Michigan and Colorado. He is presently working with education programs for economically disadvantaged children.

The school counselor and the school social worker have different jobs to do. The counselor assists students with vocational and educational plans. The social worker helps students with special social and emotional problems, usually students whose need for help has been apparent over a period of time to teachers, counselors, and school administrators, who all agree that training skills other than theirs are required.

A recent study by Robert Rowan, director of school social work in the New Jersey State Department of Education, illustrates the differences clearly. Dr. Rowan, after comparing the day-to-day functions of guidance workers in 52 large city school systems with the functions of 213 school social workers selected at random, listed the functions of each under 4 broad categories.

He found that the school counselor furnishes four types of guidance:

Educational guidance.—The counselor helps the student select high school courses and plan for post-high-school programs.

Vocational guidance.—The counselor helps the student to choose a college, university, or special training institute and, occasionally, an occupation.

Health guidance.—The counselor identifies students with physical or emotional health problems and refers identified students to the proper resources.

Personality guidance.—The counselor helps students to solve problems that are temporarily affecting their academic achievement or social development.

Dr. Rowan found that the work of the school social worker, whose

prime responsibility is to assist in the solution of problems of individual adjustment, can best be categorized by where he performs his functions:

In the home.—The social worker interviews and confers with parents and works toward adjustment in home conditions or refers parents to outside social agencies.

In the community.—The social worker uses the social agencies of the community in the referral process, prepares clients for services and case studies for referral, and cooperates in case plans.

In the profession.—The social worker serves on community committees and takes part in professional activities.

In the school.—The social worker is the school's consultant on children with special problems. He coordinates the plans of the school, home, and community agencies.

It is evident from Dr. Rowan's findings that the functions of the guidance worker and the school social worker are distinct. Misunderstandings can be resolved by carefullly evolved statements of functions and regularly planned staff discussions.

Services increasing

From 1950 to 1960 the number of workers in the entire social welfare field in the United States increased about 45 percent. At the same time, the number of school social workers increased about 100 percent. Today there are from 2,500 to 3,000 school social workers in the public schools of the United States. Ten States—California, Connecticut, Georgia, Hawaii, Illinois, Massachusetts, Michigan, New Jersey, Virginia, and Wisconsin—have consultants in school social work in their departments of education. Two States—Florida and Texas—are seeking qualified social workers for such positions. New positions are being created in school social work faster than qualified workers can be found.

The general increase in interest in school social work is reflected in Federal programs. Both the Office of Education and the Public Health Service of the U.S. Department of Health, Education, and Welfare have programs to help the school social workers. In 1959 the Office of Education added a specialist for school social work. His duties include consultation services to State departments of education, State professional organizations, and National and State conventions. The National Institute of Mental Health of the Public Health Service sponsors a program of grants to colleges and universities for graduate social work students planning to enter school social work. During the 1963–64 school year, 32 schools of social work received grants for more than 224 students at a cost of over $1 million. NIMH also makes grants for research in school social work. Under such a grant, the Interprofessional Research Commission on Pupil Personnel Services is studying the contributions of each of the disciplines involved in pupil personnel services.

Now or later?

There were two predominant reasons for the establishment of school social work in the 10 States which now have Statewide programs: The rising incidence of juvenile delinquency and the need to understand and to eliminate the problem of the dropout. I am convinced that the provision of school social work services to children is not primarily a matter of whether expenditures for these services should be made, but *when* and *in what form*. There is, I believe, a correlation between the special efforts made in behalf of children and the well-being of the community. If services are provided at a time when solutions can be found to the problems of maturing children, the community will spend less on juvenile court, welfare, and rehabilitation services later. And what of the factors that do not lend themselves to measurement? How do we measure human suffering and the waste of talent that results from neglecting children with disabling social and emotional problems? My plea is for services to children in their developing years when we have access to all of them and when we are in a position to have the greatest influence on their future development.

I admit to being partisan. I have deep respect for my colleagues in all the fields of social work, but I am convinced that of all the persons who work with children, the school social worker is in the most advantageous position to give a service to the children whose future adjustment will have a distinct bearing on the welfare of the Nation.

The initial step

In considering the establishment or expansion of school social services, officials will find it sound practice to begin by obtaining information on the number of children who might profit from such services. A good place to begin to find out how many children may need help is with the classroom teacher. Most teachers are highly capable of identifying children with special problems. The information they furnish can be useful in discussions of school social work services with those who are opposed to such services or are not clear on their benefit.

I also recommend that all available printed material on the subject of school social work be used in explaining the service. Concise information will help interested but dispassionate people to consider the matter away from pressures. Among the publications I recommend is a recent bulletin by the Office of Education called *School Social Work: A Service of Schools*. This publication goes into detail on the topics I have discussed in this article and others, such as the leadership, administration, and support of school social work programs in six States having State consultants for school social work. It is available from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402. (30 cents, OE–31007).

Oceanography: New Vistas and Opportunities

CLARENCE B. LINDQUIST

SCIENCE has begun a vast exploration of the ocean—not only of its waters and all that they contain, but of its floor and the structure beneath it. Deep-sea divers are working with scientists in the testing of man's ability to live and work at great depths, engineers are devising vessels and instruments specifically for the job of exploration and research, and chemists and biologists are looking into the possibilities of using the resources of the sea to meet man's needs for foods and minerals. Geologists are cutting through the ocean floor. And meteorologists are finding important new interrelationships between the ocean and the weather.

All these probings and explorations and the success that has attended them point firmly toward new exciting careers in oceanography. Each new discovery, each step ahead, is a sign for the schools to read; unless the schools awaken the interest of boys and girls in the matters that will provide the careers of tomorrow, tomorrow's jobs will go undone.

And if, for lack of trained men and women, the jobs in oceanography go undone, the whole Nation will suffer.

Knowledge of the seas is in the Nation's interest

The development of the marine sciences is just as important as the outer space program, if not more important. The Soviet Union is vigorously pursuing a large oceanographic program, because, as Soviet scientist G. V. Petrovich says, "The nation which first learns to understand the seas will control them, and the nation which controls the seas will control the world."

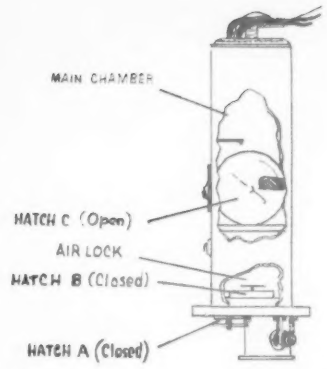
The point that the nation with the superior knowledge and utilization of the ocean environment will have a great advantage in any global conflict was emphasized by Rear Adm. E. C. Stephan, USN (Ret.), formerly Chief Hydrographer of the Navy, when he spoke at a seminar on oceanography sponsored by the Office of Education on October 11, 1963:

> In the past you may have lost only another ship if you missed an opportunity to sink an enemy submarine. Today, if you miss your opportunity, you may lose another city. The urgency to understand the environmental effects of the oceans on our weapons systems has grown tremendously.

But knowledge of the oceans is equally important for several economic and political reasons. The oceans constitute a source—one which has been relatively untapped up to now—of food, water, minerals, and chemicals for the world's exploding population. The solution to many of the world's economic problems lies in the oceans. If through ocean resources we can alleviate the needs of other nations for foods and raw materials, we will not only contribute to our own national security by cutting

A diver is emerging from the compression cylinder on the ocean floor in this sketch of activities in Edwin A. Link's Man-in-Sea Project. Eventually the project will have all three of the major pieces of equipment represented here: A cylindrical elevator to carry the diver down to his place of operations and back again, some kind of living quarters on the ocean floor, and a large decompression chamber on the deck of the parent vessel above. For the present, only one of these pieces—the cylindrical elevator—is serving as all three. At the time Mr. Link reported on his project to the Office of Education staff, the cylinder had already been used to carry a man as far down as 200 feet and to keep him there for more than 24 hours. After a dive so long and so deep, the diver had to spend 2½ days returning to normal atmospheric pressure; he spent those hours on shipdeck, still closed in the cylinder in which he had made his dive.

[Since this article was written, the Man-in-Sea Project has progressed to the point where it is using all three of the major pieces of equipment. On July 2 Jon Lindbergh and Robert Stenuit returned to the deck of the *Sea Diver* by way of the pressurized "elevator" that had carried them to a depth of 430 feet. At that depth they had stayed for 2 days, living in an inflatable rubber chamber of the kind shown in the illustration and occasionally swimming out to do photographic work. When they returned to the *Sea Diver*, they were transferred to a decompression chamber, where they spent nearly 4 days adjusting to the pressure of the atmosphere. They seem to have suffered no ill effects from the dive, and the success of this latest experiment in the project is additional evidence that divers can live and work at great depths for long periods of time, as long as they can be supplied with food and gas.]



A closer view of the aluminum cylinder used by Edwin Link in the Man-in-Sea Project. It has three hatches. The two at the entrance open in opposite directions: hatch A opens outward to withstand the pressure of the water; hatch B opens inward to withstand the pressure of the gas mixture inside. The cylinder is divided into two compartments by a third hatch, which also opens inward. The first compartment, 4½ feet long, is an air lock; the second, 71 inches long, contains all the instruments and is the diver's living quarters. The diver may leave the cylinder at any point during the dive, but he must first make sure that the internal pressure of the mixture equals the outside pressure of the water. He opens the hatches and, with his breathing apparatus strapped on, can go out and in as he pleases. The cylinder, like an inverted glass in a basin of water, admits no water and loses none of its internal pressure.

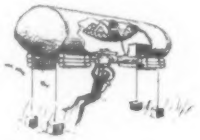
the ground out from under communism but also serve a humanitarian purpose.

Current efforts and outlook

Such rewards are worth working for—they are worth a national effort—but there are, in addition, rewards in the work itself. Already enough research has been done and enough information acquired to indicate the exciting challenges that lie ahead for those who will work in oceanography.

Edwin A. Link, inventor of aviation's Link Trainer, is conducting a project called Man-in-Sea. His ultimate goal is to find ways by which man can descend to the ocean floor and remain there, despite the cold and the pressure, for long enough periods at a time to do useful work. At the Office seminar Mr. Link described some research being carried out with the aid of his specially constructed vessel, *The Sea Diver*.

One of the major problems to which Project Man-in-Sea has addressed itself is man's limitations in adapting to changes in external pressure. Man can go down quickly to great depths and his body can adjust to the increased pressure; but he cannot return to the atmosphere as quickly. Any long stay at great depths must be paid for in hours and hours of gradual return to atmospheric pressure: the diver who spends 1 hour at 300 feet, for instance, has to spend 7 or 8 hours returning to the surface. The return trips to the surface are a major part of the problem; the job has been to find some way to make frequent return trips unnecessary. Already the project is working out a way, as the illustrations on these pages show.



An underwater pressure chamber something like this will be used in Man-in-Sea Project as a place for divers to live in while they are working and exploring on the ocean floor. With such accommodations, Mr. Link hopes, men will be able to stay down at 200 feet or more for days, even weeks, at a time.

The project is capitalizing on research already done by the U.S. Navy and others. For example, divers on the project are given an artificial mixture of gases to breathe: oxygen is mixed with helium instead of with nitrogen, which has been found to be narcotic to man when he absorbs it in the quantities forced on him by pressure. And the problem of oxygen poisoning is circumvented by reducing the proportion of oxygen in the mixture as the depth of the dive increases.

The Sea Diver carries a laboratory on board, in which tests are being carried out to find out how much pressure a man's body can bear and what combinations of gases are best for him to breathe. Already Mr. Link has successfully put mice down to a simulated depth of 3,000 feet, where the pressure is 1,500 feet per square inch.

Mr. Link's projects offer bright prospects for discovery. Moreover his success increases the possibility that other projects and ideas being developed will be successful. Take these, for example:

★ More scientific methods of "farming the sea" are certain to be developed; already techniques are being worked out to "plant, cultivate, and harvest" certain kinds of fish in coastal waters. Sir Alister Hardy, a professor at Oxford University (England), even predicts that tractor-trawls operating on the sea bed will be used to harvest the marine crop of animal and mineral substances.

★ A pilot plant in San Diego is converting a million gallons of salt water to fresh water every day. It is hoped that enough of the leftover chemicals, which are dissolved in sea water, can be extracted and used to pay for the conversion costs.

★ Roger Revelle, dean of research at the University of California, believes that if some barrier could be interposed between the sun and the ocean, hurricanes could be prevented. A hurricane gets its start because certain areas of the ocean surface become warmer than surrounding areas and cause the air immediately above to rise faster than the surrounding air. Dr. Revelle suggests that if a fleet of ships emitting artificial clouds of some reflecting material were to patrol the critical areas during those months just before hurricane-breeding time, hurricanes could not start. The cost of the patrol would be great, he admits, but even if it were to reach the proportion of the losses this Nation

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Dr. Lindquist is specialist for mathematics and physical sciences, U.S. Office of Education. Before coming to the Office, he taught at the U.S. Naval Academy and the University of Minnesota at Duluth, where he also served as head of the department of mathematics and engineering.

has annually suffered from hurricanes, it would be well worth paying.

★ One of the most interesting projects is Project Mohole, in which efforts are being made from a ship to drill a hole down into the earth's mantle in search of secrets of the earth's origin.

Other imaginative possibilities—such as a fleet of underwater cargo ships and means of influencing and controlling the weather—are being considered, but the few listed above indicate the challenge oceanography offers.

The shortage will not be in challenges. The shortage will be in highly educated people ready to meet them.

Education for careers in oceanography

Ten years from now, if the research now in progress is as productive as the research preceding it, oceanography will have grown into a broad and complex field, offering many more career opportunities than it offers today. Today, according to Robert B. Abel, executive secretary of the Federal Government's Interagency Committee on Oceanography (ICO), 2,700 persons are working professionally in the whole field of oceanography. But 10 years from now, ICO estimates, this number will have grown to 6,000—an increase of 9 or 10 percent a year compared to the expected increase of only 7 or 8 percent in all fields of science and technology.

Federal budgets for oceanographic programs, which increased from $24 million in fiscal year 1958 to $124 million in 1963, will increase by about 10 or 11 percent in the next decade. Annual expenditures, public and private, are expected to reach $350 million by fiscal year 1972. Between 1963 and 1972 the number of oceanographic ships will also increase from 76 to 128 and major oceanographic laboratories, from 50-odd to 70-odd.

Whether all these expected increases take place is not so much a matter of funds available as it is a matter of trained men and women available. It is a matter of the educational programs that will be provided in schools and colleges, a matter of awakening the interest of boys and girls in the sciences that can unlock the mysteries of the seas.

Almost all oceanography today is taught only at the graduate level; in recent years only the University of Washington in Seattle has conferred degrees at the bachelor's level. There are, however, 16 institutions offering advanced degrees in oceanography and 20 institutions offering courses in the marine sciences. (For sources of information on courses and curriculums, see the references, p. 14.) At present, from 30 to 40 master's degrees in oceanography are being conferred each year and about half as many Ph. D.'s.

But oceanography is an interdisciplinary science, and scientists in many fields are making substantial contributions to it. Of the 2,700 persons now in oceanography, Mr. Abel says, only about 1 in 10 has a degree in it. The other nine come from the allied sciences of physics, chemistry, biology, geology, and mathematics. A student planning to follow a career in oceanography should take as much science and mathematics in high school and college as possible without neglecting other subjects necessary to a broad liberal education. But he should also bear in mind that many leaders in the field believe that more and more of the persons who enter oceanographic employment should be broadly trained oceanographers.

An increasing number of Federal agencies have been assisting graduate students interested in oceanography: the Public Health Service, through its fellowship and training-grant program; the Office of Naval Research, through college research projects; the National Science Foundation, through various programs; and the Bureaus of Commercial Fisheries and Sport Fisheries, Department of the Interior, through student-help programs.

To delay the awakening of a student's interest until he is in college or graduate school is to wait too long. Even the first grade is not too soon to begin to interest pupils in the exciting phenomena of the ocean. But the sad fact is that only a few concepts of oceanography—such as water cycle, waves, currents, and tides—are taught in grades 1 through 12, according to a study conducted in 1963 by Rolland B. Bartholomew, science teacher, Palo Alto, Calif., for the Earth Sciences Curriculum Project (ESCP).

Recently, however, the increasing interest in oceanography has convinced many educators that more oceanographic concepts should be taught in school programs. There are signs that their convictions will lead to action. First, there is the increase in courses in the earth sciences, which include oceanographic subject matter: in 1950 less than 1 percent of the students in public high schools were enrolled in earth science courses; in July 1963 at least some schools in all 50 States and the District of Columbia were planning to offer such courses during the 1963–64 school year, according to an ESCP study. Second, there is the emphasis on oceanography in the 1964 ESCP summer writing conference: 5 of the 42 persons selected to develop materials for teaching earth science in the schools were university professors of oceanography.

Teachers need not, however, wait for courses in earth sciences to be added to their curriculums. They can enliven their natural science classes and at the same time stimulate their pupils' interest by telling them stories about the oceans or having them perform simple experiments with water. Some equipment and materials are already available, and more are being produced.

Thomas E. Moriarity, chairman of the department of education at the University of Rhode Island, aided by a $1,500 grant from the Link Foundation, is preparing teaching units on oceanography for use in grades 4, 5, and 6. Dr. Moriarity plans to print booklets containing illustrations, a topical outline for teachers, suggested activities for students, and the source

of materials that could be used for classroom projects. He is also preparing a bibliography to be printed separately.

Federal support

The Federal Government and some State governments are expanding their support to research and education in the marine sciences. In the Federal Government 22 agencies are involved in varying degrees in oceanography as a part of their regular work. Because it was practically impossible to draw all Federal oceanographic activities together in one big department or agency, in 1959 the Government established the Interagency Committee on Oceanography (ICO) under the Federal Council of Science and Technology. The ICO is coordinating the agencies' annual plans and programs in the marine sciences, eliminating unnecessary duplication, and working to carry out the objectives efficiently.

Naturally the Navy has a major interest in oceanography and is pushing ahead. In April 1964 officials established a Naval Institute of Oceanology to speed the scientific and military study of the oceans. (Despite the fact that the term "oceanography" has gained wide acceptance in this country, the Navy uses the term "oceanology" in the Institute's name because many consider it more appropriate in describing the marine sciences.) The new institute will have a staff of nearly 500 persons, some of whom will transfer from the Navy Oceanographic Office and the Office of Naval Research.

Sources of further information

Bibliography of Oceanographic Publications, ICO Pamphlet No. 9, April 1963, by the Interagency Committee on Oceanography of the Federal Council for Science and Technology. Contains a list of 500 selected titles, including films and filmstrips, and one section on suggested readings for students aged 14 and over and another for children 10 to 14. Single copies of this bibliography are available from Interagency Committee on Oceanography, Federal Council on Science and Technology, Washington, D.C., 20360.

A Career in Oceanography, ICO Pamphlet No. 8, by the Interagency Committee on Oceanography of the Federal Council on Science and Technology. (This pamphlet is scheduled for release in midsummer 1964.)

"Employment Outlook for Oceanographers," by H. V. Stambler, in the *Occupational Outlook Quarterly*, May 1963, vol. 7, No. 2. Discusses nature of the work, training and other qualifications for employment, advancement, employment outlook, earnings, and working conditions.

Films on Oceanography, Publication C4, December 1963, published by National Oceanographic Data Center and printed by U.S. Naval Oceanographic Office, Washington, D.C., 20390, 25 cents.

A Reader's Guide to Oceanography, prepared by Jan Hahn. Obtainable from Woods Hole Oceanographic Institution, Woods Hole, Mass., 02543. This pamphlet, the fourth edition of which appeared in October 1962, contains titles of books, articles, charts, films, and filmstrips on oceanography.

"Selected References on the Ocean and Oceanography for Elementary School Reading," prepared by the U.S. Hydrographic Office, in *Science and Children*, vol. 1, No. 3, November 1963, p. 25.

University Curricula in Oceanography, Academic Year 1963–64, ICO Pamphlet No. 14, June 1963, by the Interagency Committee on Oceanography.

Handbook on instructional program

No fair evaluation of the quality of U.S. education can be made without reliable and comparable information on instructional programs across the country. Although educators have for many years needed such information, they still are unable to get it—not because the school systems keep no records but because their record terminology varies from system to system. On May 20 and 21 the first step was taken to make such information possible. On these two days representatives of 13 national organizations and Office of Education staff, in the first of a series of national working conferences, began a joint effort to develop a handbook on the instructional program.

The handbook will be designed to identify, classify, and define those items of information about instruction which the conferees recommend that all school systems should record and maintain in comparable form.

The handbook will be the sixth in the Office of Education's State Educational Records and Reports Series, but the first to be made on the instructional program.

The conference was attended by these representatives of national organizations: Evart W. Ardis, American Association of School Administrators; Willard Bear, Council of Chief State School Officers; Mildred H. Bebell, Association for Supervision and Curriculum Development; Bess Goodykoontz, Association for Childhood Education International; Barnard Joy, National School Boards Association; Ruth Martinson, Council for Exceptional Children; George O. McClary, American Personnel and Guidance Association; Joseph T. Nerden, American Vocational Association; June Parmeley, Department of Classroom Teachers of NEA; William G. Shannon, American Association of Junior Colleges; Simeon P. Taylor, III, National Education Association, Research Division; John H. Thatcher, National Association for Public School Adult Education; Norman F. Thorpe, National Association of Secondary-School Principals; V. Phillips Weaver, Department of Elementary School Principals of NEA; David W. Zimmerman, Council of Chief State School Officers; Ross M. Coxe, Department of Elementary School Principals of NEA.

John F. Putnam and W. Dale Chismore, specialists for educational records and reports, Office of Education, are coordinating the project.

AD Minutes Briefly noted--- for the busy School Administrator

Material for this department is prepared by the staff of the Division of Educational Organization and Administration

In Chicago the domestic peace corps, recruited by the Mayor's Committee on New Residents, has been so successful in tutoring young people and adults that plans are being made to double the size of the corps. The corps, made up of 1,500 volunteers—high school and college students, housewives, and young professionals—teaches basic skills to adult in-migrants and assists students seeking special help with their studies.

The plan to recruit more volunteers to the corps is made in anticipation of an influx of Cuban refugees now living in Miami, Fla. Because Miami is now enforcing a city ruling that refugees who refuse a job or an offer of relocation in another city must be dropped from city relief rolls, the reception center in Chicago is expecting many refugees to come into the city.

Voters in several States will soon have a chance to declare themselves on school bond issues. For example:

In North Carolina a referendum on a proposed $100 million school bond issue authorized by the 1963 State legislature will be held in conjunction with the November general election. Governor Sanford recently said that a survey of construction needs showed a classroom shortage in the State of at least $350 million. On this basis, he said, the legislature concluded that the State should aid in school construction by about $100 million.

In California a $380 million bond issue for State building construction has been approved by the legislature and will be submitted to the electorate in November. Of this amount, $50 million would be for junior colleges.

In Massachusetts, Governor Peabody has recommended to the State legislature a capital improvement program totaling $48.9 million to be financed by bond sales. About $31 million of the total would be used for educational institutions.

In New Jersey, the legislature has approved proposals for $90.1 million in bond issues for submission to the electorate in November. Of the total, $40.1 million would be used for institutions of higher education.

A nationwide study of the physical condition of children, ages 6 through 11 years, is being made by the U.S. Public Health Service. The Office of Education has assisted by enlisting the cooperation of State and local school systems. The study will be based on a survey of a random sample of 8,000 children from 40 locations throughout the United States. Every one of the 8,000 children will be individually examined. The sample has been selected with the assistance of the Bureau of the Census.

Publication of the final results should be of interest and value to administrators, since, for the first time, norms of physical and psychological growth and development will be established from a nationwide sample. Since the sample group is selected on a tightly controlled scientific basis, designed to eliminate bias and to insure the randomness essential to the validity of statistical studies, data obtained in this study will be representative of the entire noninstitutionalized 6- through 11-year age group in the Nation—about 25 million children.

The survey is being conducted by traveling teams working under the direction of the Division of Health Examination Statistics of the Public Health Services' National Center for Health Statistics. The teams include pediatricians, dentists, nurses, psychologists, technicians, and interviewers. Examinations are given in a mobile examination center, housed in large tractor-drawn trailers.

The program is carried out with the cooperation of the various professional organizations, such as medical societies, State and local health officials, and school officials.

Before each area is visited, representatives of the Public Health Service get in touch with school officials at the State and local levels and work out agreeable arrangements for scheduling the examinations, most of which are given during school hours. In addition, survey interviewers get a signed authorization from the parents of each child along with information on his medical history.

A 2-county Metropolitan Youth Education Center to serve the special needs of school dropouts will open this fall in Colorado. It will be financed and sponsored by the Denver City (Denver County) and Jefferson County (Colo.) schools. The cooperative center for potential and actual dropouts, ages 16 to 21, will place great emphasis on flexibility and adaptability and will not, a member of the Denver Board of Education says, be just another "dumping ground" for dropouts. The center will have these main purposes:

To give boys and girls a second chance to pick up basic skills in English and math.

To offer them up-to-date training in vocational and technical skills.

To impress on them the importance of preparing for a responsible job.

To help them find a job after they complete their formal education.

SCHOOL BONDS

. . . sales, interest rates, et cetera . . .

By Elmer C. Deering, specialist on the financing of school facilities, Division of Educational Organization and Administration, Office of Education.

WHEN ALL OF THE RETURNS are in, the 1963–64 school year should rank among the best in voters' approval of school bond issues. The amount approved, about $1.8 billion, ranks second only to the 1962–63 total in the 7-year period in which the Office of Education has reported results of school bond elections. Probably more significant, a 2-year downward trend in the percentage approved was reversed in 1963–64, when voters passed 71 percent of the amount submitted to them.

Average net interest cost of Moody-rated bonds sold on the primary market for public schools: Annual, 1959–60 to 1963–64, by rating only; quarterly, 1963–64, by rating and by term of bond

Year or quarter	Aaa	Aa	A	Baa	Ba	All rated bonds
1959–60	3.26	3.63	3.77	4.21	4.55	3.84
1960–61	2.82	3.34	3.43	3.75	3.97	3.48
1961–62	2.84	3.23	3.19	3.51	3.93	3.27
1962–63	2.64	2.86	2.99	3.29	3.72	3.03
1963–64	2.88	3.07	3.16	3.43	3.80	3.21
July–September 1963:						
Under 15 years	2.62	2.77	2.76	3.11	.....	2.75
15–24 years	.....	2.94	3.05	3.30	3.75	3.10
25 years and over	.....	3.00	3.21	3.38	3.79	3.20
All terms	2.62	2.96	3.05	3.34	3.77	3.11
October–December 1963:						
Under 15 years	2.37	2.84	2.90	3.04	.....	2.92
15–24 years	2.86	3.04	3.16	3.35	3.79	3.12
25 years and over	.....	3.14	3.28	3.50	3.76	3.34
All terms	2.86	3.07	3.20	3.44	3.77	3.21
January–March 1964:						
Under 15 years	2.86	2.63	2.94	3.19	.....	2.96
15–24 years	2.89	2.96	3.20	3.42	3.73	3.18
25 years and over	.....	3.18	3.24	3.47	3.88	3.34
All terms	2.89	3.02	3.21	3.44	3.85	3.24
April–June 1964:						
Under 15 years	2.87	2.91	2.91	2.95	.....	2.91
15–24 years	2.93	3.09	3.20	3.48	3.82	3.20
25 years and over	.....	3.20	3.26	3.51	3.81	3.33
All terms	2.90	3.13	3.18	3.49	3.82	3.23

Source: Sales reported by THE DAILY BOND BUYER; ratings, by Moody's Investors Service (rated bonds include about 75 or 80 percent of all bonds for public school purposes).

The following tabulation compares school bond elections in the past 7 years. It shows that voters approved 71.7 percent of all school bond proposals during this period. Since a few States require approval by 66⅔ percent of the voters and several States by 60 percent or more, the record can be considered good.

School bonds: Amount voted on and amount approved, school years 1957–58 to 1963–64

School year	School bonds voted on (millions)	School bonds approved (millions)	Percent approved
1957–58	$1,551	$1,132	73.0
1958–59	1,801	1,433	79.6
1959–60	2,672	1,774	66.4
1960–61	1,618	1,232	76.1
1961–62	1,950	1,367	70.1
1962–63	2,681	1,873	69.9
1963–64	2,550	1,810	71.0
Total	14,823	10,621	71.7

Bond sales for public school purposes in 1963–64 totaled more than $2 billion for the fifth consecutive year, $275 million more than in 1962–63 but about $20 million below the record year of 1961–62. Sales of school bonds in the past 7 years were as follows:

School year	*Sales in millions*
1957–58	$2,420
1958–59	1,948
1959–60	2,198
1960–61	2,361
1961–62	2,570
1962–63	2,274
1963–64	2,550
Total	16,321

Nearly a fourth of the volume of sales in 1963–64 was in sales of $10 million or more, made by 20 agencies:

Agency	*Millions*
STATE	
California	$120.0
Pennsylvania (school building authority)	58.0
Maryland	29.8
Washington	25.8
Minnesota	19.8
CITY	
New York	103.5
Baltimore	15.9
COUNTY	
Prince George's, Md.	15.0
Baltimore, Md.	13.7
Anne Arundel, Md.	10.0
SCHOOL DISTRICT	
Los Angeles Unified	50.0
Orange County (Fla.)	25.0
Cleveland	20.0
Philadelphia	15.0
Tulsa	12.0
Milwaukee	11.2
Duval County (Fla.)	10.9
Racine Unified (Wis.)	10.6
Dallas	10.0
Houston	10.0

The average net interest cost on all Moody-rated school bonds, which declined 81 basis points between 1959–60 and 1962–63, rose 18 basis points in 1963–64. A peak of 3.24 percent was reached in the January–March quarter of 1964, followed by a slight downward turn.

More Notes on the Notable

Middle East institutions receive AID grants

Three American institutions of higher education in the Middle East are expanding and improving their programs through grants from the Agency for International Development. All three—the American University of Beirut, the International College of Beirut, and the American University of Cairo—are long-established private institutions chartered in the United States. They are among nine oversea institutions which are sponsored by U.S. citizens and which are receiving Federal financial assistance under special congressional authority. These institutions provide technical training very much needed in the areas in which they are located, and in addition they help spread information about U.S. ideals and culture. Many of their graduates have become leaders in government, business, and the professions.

The three Middle East institutions will use the AID grants to obtain equipment and textbooks, finance fellowships and scholarships, or expand or acquire facilities. Among the projects the grants will help finance are a medical center at the American University of Beirut; a campus at Damour, on the outskirts of Beirut, for the International College; and a center for Arabic study at the American University of Cairo.

NASA training grants

Nearly 1,100 students will begin work on doctoral degrees in space-related fields under grants made by the National Aeronautics and Space Administration to 131 colleges and universities in academic year 1964–65. Participants will be selected by the universities conducting the programs, which will begin September 1964. The number of openings at any one institution varies, depending on the number of doctoral programs available in space-related fields, the school's facilities, and the extent to which the institution participates in space activities.

Graduate students chosen for the program will receive stipends of $2,400 for 12 months of training and an allowance of up to $1,000 for each dependent. A student is eligible for 3 years of study if he maintains a satisfactory record.

Portrait Gallery to open in 1966

In another 2 years the Smithsonian Institution will open the National Portrait Gallery, authorized by the Congress in 1962. The enabling act says that the gallery is to function as a "free public museum for the exhibition and study of portraiture and statuary depicting men and women who have made significant contributions to the history, development, and culture of the people of the United States and of the artists who created such portraiture and sculpture." The gallery will obtain its works of art and other materials through gifts, loans, and purchases.

The gallery will share quarters with the National Collection of Fine Arts in the Patent Office Building in Washington (built between 1836 and 1857), now being renovated.

Training materials in science for foreign affairs officers

The Foreign Service Institute of the Department of State has received a grant from the Ford Foundation to develop curriculum and training materials on the interaction of science and foreign affairs. The materials will be used to train foreign affairs officers who can handle problems of science. Though the Institute will be the principal user, the materials will also be useful to other academic and nonacademic institutions working in the field of foreign affairs and to bureaus of the Department of State.

Foreign affairs experts and scientists in and out of the Government are contributing to the development of the materials through suggestions, comments, and criticisms offered in correspondence, interviews, and conferences.

The Foreign Service Institute was established by the Congress in 1946 to "furnish training and instruction to officers and employees of the Service and of the Department and to other officers and employees of the Government for whom training and instruction in the field of foreign relations is necessary, and to promote and foster programs of study incidental to such training."

Social work college in Africa

Specialists from the United States are helping the Oppenheimer College of Social Services (OCSS) in Lusaka, Rhodesia, develop a Central African college for training social workers. Through grants from the Agency for International Development OCSS has obtained the services of specialists in social work education and social group work from the United States.

The college is adapting British and American experience in social work to the needs of contemporary Africa. It plans to graduate about 30 social workers a year when in full operation. The first class, 14 students, will graduate this summer.

AID is only one of the contributors to the project; others are the Government of Northern Rhodesia, local industry, private foundations, and UNICEF.

Alliance for Progress

Central America

A graduate fellowship program for outstanding young people in Guatemala, Nicaragua, Honduras, Costa Rica, El Salvador, and Panama has been set up by the Alliance for Progress. The program was proposed by President Kennedy and adopted by

the Presidents of the six countries in March 1963. The scholarships will help these countries to increase their supply of trained men and women in such fields as administration, economics, science, engineering, education, and medicine.

About 200 students will be selected each year. The first group, 25 in all, are now at colleges and universities across the United States.

Chile

Chile will build 23 public schools for 14,000 children in low-income communities in its four principal cities through a loan from the Alliance for Progress. The country has a critical shortage of classrooms in the primary grades and needs about 2,000 new classrooms each year to meet population increases and to replace obsolete buildings. The new schools will contain gymnasiums, libraries, kitchens, dining rooms, workshops, and living quarters for school principals, as well as classrooms. The schools will also be used for adult education.

The Government of Chile will purchase school sites and finance the planning, engineering, and acquisition of equipment and furnishings.

The cities in which the schools will be built are Santiago, Valparaiso, Antofagasta, and Concepción.

Guatemala

The American School in Guatemala (El Colegio Americano de Guatemala) is expanding and improving its courses and facilities through a loan made by the Agency for International Development through the Alliance for Progress. When the improvements are made, the school will be able to substantially increase the number of students it graduates each year, at present about 40.

Guatemala has a serious shortage of secondary school facilities, particularly of schools offering college preparatory courses. The expanded program of the American School can help the country overcome this shortage and an accompanying shortage of trained technicians and managers.

The Surgeon General's report on smoking—a call for action

WHAT PART WILL THE SCHOOLS PLAY?

Elsa Schneider

THE SURGEON GENERAL of the United States has released the report of the committee he appointed in 1962 to reach some conclusions on the relationship between smoking and health. The report fills 387 pages, but there is one sentence in it, printed in bold type, that states the Committee's terse judgment:

> **"Cigarette smoking is a health hazard of sufficient importance in the United States to warrant appropriate remedial action."**

The Committee has found, for example, that—

- **Cigarette smoking is a cause of lung cancer: the average male smoker runs 9 to 10 times more risk of developing lung cancer than the nonsmoker does; the heavy smoker, 20 times more.**
- **Cigarette smoking is the most important cause of chronic bronchitis in the United States, and increases the risk of dying from chronic bronchitis and emphysema.**
- **Male cigarette smokers have a higher death rate from coronary artery disease than nonsmoking males, but it is not clear that the association has causal significance.**
- **Pipe smoking appears to be causally related to lip cancer.**
- **Cigarette smoking is a significant factor in the causation of cancer of the larynx.**
- **Evidence supports the belief that an association exists between tobacco use and cancer of the esophagus, and between cigarette smoking and cancer of the urinary bladder in men, but the data are not sufficient to support a judgment on the causal significance of this association.**

What part the schools will take in the remedial action the Committee calls for will be decided at State and local levels, but no one doubts that the schools will feel responsibility in the matter and educators agree that the schools should share in the task of educating young people about smoking. Educators see the temptation to smoke as one of a hundred temptations that young people face. They recognize that the problem is complex, that in teenagers it grows out of many emotional and psychological drives—the urge to experiment, the wish to emulate someone, the passion to conform, the search for security, and the desire to achieve adult status. And because educators are aware of the complexity of the causes, they know that remedial action must be carefully and perceptively taken. They know that if they push too hard, the teenagers may either shut out the sounds of warning or go contrary to them.

While State and local authorities are pondering their responsibilities for protecting the mental and physical health of their young people, many things are happening at the national level. Health and education organizations and agencies are calling national conferences to consider the part each will take in the remedial action the Surgeon General's report calls for, to plan educational materials and to decide on ways of distributing and using them. In the spring a national youth conference on smoking was held in Washington, D.C. It was called by the Children's Bureau and was attended by at least 2 teenagers from each State and 1 from each of the 14 largest cities.

On July 10 twelve national agencies and organizations in the fields of health and education announced that they had formed a National Interagency Council on Smoking and Health. Their purpose is to develop and carry out plans and programs for combating smoking as a health hazard, and they will be interested in any programs already in existence for this purpose.

As a service to the Council and others, the Office of Education hopes to collect and disseminate information on what schools and communities are doing to educate their children about smoking. The author asks that persons working with the problem at State and local levels keep her informed about their efforts. Anyone with information to contribute should address it to the author, Office of Education, Washington, D.C., 20202.

Miss Schneider is specialist for health, physical education, recreation, and safety.

Office of Education Publications in 1963–64

Purchase from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.

Biennial survey

Chapter 5: Statistics of Special Education for Exceptional Children and Youth, 1957–58 (Final Report), 75 cents (OE–35048–58).

Cooperative research

Cooperative Research Projects: Fiscal Year 1962, 45 cents (OE–12004–62).

Education Directory

Part 1: State Governments, 30 cents (OE–20004–64).
Part 2: Public School Systems, $1 (OE–20005–63).
Part 3: Higher Education, $1 (OE–50000–64).

Educational media

The Educational Television Facilities Act of 1962, 10 cents (OE–34028).

Key New Educational Media Personnel in Public School and Library Systems in States and Large Cities and in Large Colleges and Universities, 1962–63, 35 cents (OE–34003–63).

Programs, '63: A Guide to Programed Instructional Materials Available to Educators by September 1963, $2.50 (OE–34015–63).

Elementary and secondary education

The Core Program: Unpublished Research, 1956–1962, 40 cents (OE–33030).

The Dropout: Schools Search for Clues to His Problems: Information, Terms, and Computation, 10 cents (OE–20055).

Fall 1963 Statistics on Enrollment, Teachers, and Schoolhousing in Full-Time Public Elementary and Secondary Day Schools: Final Report, 30 cents (OE–20007–63).

Good Posture for Boys and Girls, 10 cents ($6.50 a hundred) (OE–28007).

Grouping Children for Instruction in the Elementary School: A Conference Points the Way, 15 cents (OE–20062).

Guidance for Children in Elementary Schools, 15 cents (OE–25032).

Guidance Workers Certification Requirements, 35 cents (OE–25005A).

A Handbook for Guiding Students in Modern Foreign Languages, 45 cents (OE–27018).

High School Dropouts: A 20th Century Tragedy, 5 cents (OE–20053).

Improving English Skills of Culturally Different Youth in Large Cities: Excerpts of Speeches Given at a Conference, May 31–June 2, 1962, 75 cents (OE–30012).

Improving the Learning Environment: A Study on the Local Preparation of Visual Instructional Materials, $1 (OE–34031).

The Junior High School: A Survey of Grades 7–8–9, Junior and Junior-Senior High Schools, 1959–60, 45 cents (OE–20046).

Junior-Year Science, Mathematics, and Foreign Language Students: First-term 1962–63, 55 cents (OE–54001–62).

Modern Mathematics and Your Child, 20 cents (OE–29047).

Modern Science and Your Child, 25 cents (OE–29048).

The 1963 Dropout Campaign: Summary and Analysis of the Special Summer Program To Combat School Dropout Financed from the President's Emergency Fund, 20 cents (OE–20060).

National Inventory of School Facilities and Personnel: Spring 1962, $1 (OE–21026).

Nonpublic Secondary Schools: A Directory, 1960–61, Showing Accreditation Status, Enrollment, Classroom Teachers, and Other Data, 75 cents (OE–20043).

Preliminary Statistics of State School Systems, 1961–62, 20 cents (OE–20006–62).

Problems in Planning Urban School Facilities, 30 cents (OE–21023).

Programs for the Educationally Disadvantaged: A Report of a Conference on Teaching Children and Youth Who Are Educationally Disadvantaged, 50 cents (OE–35044).

Pupil Marks and School Marking Systems: A Selected Bibliography, 20 cents (OE–20051).

References on Foreign Languages in the Elementary School, 40 cents (OE–27008–B).

Research in Reading at the Primary Level: An Annotated Bibliography, 50 cents (OE–30008).

Research in Reading for the Middle Grades: An Annotated Bibliography, 30 cents (OE–30009).

Research in Reading Readiness, 20 cents (OE–30013).

School Building Maintenance Procedures, $1.25 (OE–21027).

School-Home Partnership in Depressed Urban Neighborhoods, 40 cents (OE–31008).

School Social Work: A Service of Schools, 30 cents (OE–31007).

Science and Mathematics Teachers in Public High Schools, 20 cents (OE–29045).

Science Equipment and Materials: Science Kits, 15 cents (OE–29049).

Selected Reports and Statistics on School Dropouts, 15 cents (OE–20063).

Selected State Programs in Migrant Education, 25 cents (OE–23030).

Space and Facilities for Art Instruction, 65 cents (OE–21025).

Statistics on Nonpublic Secondary Schools, 1960–61: Type of School Enrollment, and Staff, 40 cents (OE–20050).

Stronger Schools Through Guidance, Counseling, Testing, State Leadership, Instructional Resources, and Equipment: A Brief Explanation of Titles III and V–A of NDEA, 15 cents (OE–20021A).

Supervision for Quality Education in Science: Report of a Conference Arranged by the Specialists for Secondary Science; June 25–29, 1962, 65 cents (OE–29039).

Teacher Turnover in Public Elementary and Secondary Schools, 1959–60, 25 cents (OE–23002–60).

Teaching Young Children to Read: Proceedings of a Conference, November 14–16, 1962, 55 cents (OE–30014).

Unit Planning and Teaching in Elementary Social Studies, 45 cents (OE–31003).

Higher education

Case Studies in the Liberal Arts College: Academic Administration, 70 cents (OE–53020).

College and University Facilities Survey, Part 4: College and University Enrollment and Facilities Survey, 1961–65, 75 cents (OE–51006).

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Earned Degrees Conferred, 1960–1961: Bachelor's and Higher Degrees, $1.75 (OE–54013–61).

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Preliminary Report on Teaching Faculty in Higher Education, 1962–63: Primary Teaching Areas and Contract Salaries, 20 cents (OE–53022).

Reporter: Clearinghouse of Studies on Higher Education, No. 6, 40 cents (OE–50004–6).

Statistics of Land-Grant Colleges and Universities: Year Ended June 30, 1961, 75 cents (OE–50002–61).

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The 2-year Community College: An Annotated List of Unpublished Studies and Surveys, 1957–61, 20 cents (OE–57005).

What Standards Do We Raise? New Dimensions in Higher Education, Number 12, 15 cents (OE–53019).

International education

The Current Situation in Latin American Education, 15 cents (OE–14080).

Educational Data: Cuba, 15 cents (OE–14034–67).

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Education in Chile, 20 cents (OE–14096).

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"Welcome, Stranger!" Suggestions for Schools and Communities When Receiving Visiting Educators from Abroad, 10 cents (OE–14097).

Library services

Library Education Directory, 1962–63, 30 cents (OE–15046).

Library Statistics of Colleges and Universities, 1962–63: Institutional Data, 75 cents (OE–15023–63).

Library Science Dissertations, 1925–60: An Annotated Bibliography of Doctoral Studies, 75 cents (OE–15044).

The School Library as a Materials Center: Educational Needs of Librarians and Teachers in Its Administration and Use, 50 cents (OE–15042).

State Plans Under the Library Services Act. Supplement 3: A Progress Report, the First Five Years, Fiscal Year 1957–61, 75 cents (OE–15012–61).

National Defense Education Act

National Defense Language Development Programs: Completed Research, Studies, and Instructional Materials, List No. 3, 35 cents (OE–12016–63).

National Development Through Social Progress: The Role of Education, 15 cents (OE–10027).

1964–65 Modern Foreign Language Fellowship Program: NDEA Title VI and NDEA-Related Projects Under the Fulbright-Hays Act, 1963, 15 cents (OE–55034).

Projects Initiated Under Title VII, Part B, National Defense Education Act, September 2, 1958-June 30, 1963, 20 cents (OE–34021–63).

Report on the National Defense Education Act; Fiscal Years 1961 and 1962: A Summary of Programs Administered by the Office of Education under Public Law 85–864, $1 (OE–10004–62).

School finance

Bond Sales for Public School Purposes, July 1, 1962–June 30, 1963, 15 cents (OE–22009–63).

Nonproperty Taxation for Schools: Possibilities for Local Application, 55 cents (OE–22021).

Special education

Talent Development Project, 1964, 10 cents (OE–35053).

Talent, A State's Resource, a State's Responsibility: Report of a Conference of State Department of Education Directors of Programs for the Gifted, 35 cents (OE–20048).

Vocational education

Curriculum Materials for Trade and Industrial Education, 1963: A Listing of Materials Available From Public Education Agencies, 35 cents (OE–84023A).

Digest of Annual Reports of State Boards for Vocational Education to the Office of Education: Fiscal Year Ended June 30, 1962, Summary of Statistics and Financial Information, 45 cents (OE–80008–62).

Education and Training: Key to Development of Human Resources (Second Annual Report of the Secretary of Health, Education, and Welfare to the Congress Under the Manpower Development and Training Act) 40 cents (OE–87030).

Education for a Changing World of Work: Appendix I: Technical Training in the United States, $1.25 (OE–80022).

Appendix II: Manpower in Farming and Related Occupations, 35 cents (OE–80025).

Appendix III: The Economic and Social Background of Vocational Education in the United States; a Sociological Analysis of Vocational Education in the United States; the Case for Education for Home and Family Living; the Contribution to the National Economy of the Use of Resources Within and By the Family, 50 cents (OE–80026).

Electronic Data Processing in Engineering, Science, and Business, 35 cents (OE–80030).

Home Economics in Institutions Granting Bachelor's or Higher Degrees, 1961–62; Enrollments, 55 cents (OE–83008–62).

Planning and Organizing an Export Trade Education Program, 20 cents (OE–82012).

Standard Industrial Classification for Use in Distributive Education, 10 cents (OE–82013).

Miscellaneous

Administration of Public Laws 874 and 815: Thirteenth Annual Report of the Commissioner of Education, $1 (OE–22003–63).

Handbook, Office of Education: Including Career Opportunities, 25 cents (OE–11002–A).

Publications of the Office of Education, 1963, 30 cents (OE–11000C).

Teaching as a Career, 20 cents (OE–26014).

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